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U.S. DEPARTMENT OF COMMERCE NATIONAL BUREAU OF STANDARDS WASHINGTON 25, D.C.

May 19, 1948

Letter Circular LC907

TEXTILE TESTING EQUIPMENT

By Josephine M. Blandford

#### INTRODUCTION

The properties of textile fibers, yarns, and fabrics are becoming increasingly important with the introduction and popularity of a wide range of synthetic textile products and the development of textiles for specialized industrial and consumer usage. The testing of textiles makes possible a study of these properties, is a criterion for quality evaluation, and a means of estimating and developing textile potentialities. The testing of textiles in industrial, research, and college laboratories is increasing steadily. Facilitating this expansion is the development and availability of textile testing equipment.

This circular lists names and addresses of some of the dealers in textile testing equipment, chemical laboratory equipment and reagents, and improvised laboratory testing equipment. It has been prepared by the National Bureau of Standards to answer requests for sources of supply. It does not purport to be complete, nor does the listing of a dealer or testing device constitute endorsement by this Bureau. Inquiries regarding equipment should be addressed to the dealer and not to the National Bureau of Standards.

References are given to standards and specifications which outline testing procedures followed by many textile testing laboratories. Research Papers and other publications pertinent to the evaluation of properties associated with the instruments and equipment are listed chronologically.

A number of the publications of this Bureau are issued regularly to many college and public libraries which maintain files for reference.

Government publications, unless otherwise stated, may be purchased from the Superintendent of Documents, Government Printing Office, Washington 25, D. C. Remittance should be made either by coupons (obtainable from the Superintendent of Documents in sets of 20 for \$1.00 and good until used), or by check or money order payable to the "Superintendent of Documents, Government Printing Office, Washington 25, D. C.", accompanying the publication order.

Dealer or Reference

Abraser, Taber

Suter, Alfred, 200 Fifth Ave., New York, N.Y.

Taber Instrument Co., 257 Goundry St., N. Tonawanda, N. Y.

Abrasion Machine, Haven

Hamblett Machine Co., Lawrence, Mass.

Abrasion Machine, Schopper

Testing Machines, Inc., 421 West 42nd St., New York, N.Y.

Abrasion Tester, Shawmut (carpets)

Shawmut Engineering Co., 195 Fresport St., Boston, Mass.

Abrasion Tester, Stoll-Quartermaster

American Instrument Co., 8030 Georgia Ave., Silver Spring, Md.

Abrasion Tester, Wyzenbeek

Wyzenbeek and Staff, Inc., 838 West Hubbard Ave., Chicago 22, Ill.

Abrasion Testing Machine, Carpet, NBS

Frazier, Sherman W., 953 15th St., S. E., Washington 3, D. C.

Abrasion Testing Machine, Schiefer

Frazier, Sherman W., 953 15th St., S. E., Washington 3, D. C.

Philip Machine Shop,
321 Cherry St., Carlisle, Pa.

Air Permeability Apparatus, NBS

American Instrument Co., 2030 Georgia Ave., Silver Spring, Md.

Frazier, Sherman W., 953 15th St., S. E., Washington 3, D. C.

U. S. Testing Co., Inc., 1415 Park Ave., Hoboken, N. J.

Gurley, W. and L. E., Troy, N. Y.

Gurley, W. and L. E., Troy, N. Y.

Air Permeability Apparatus,
Densometer

Air Permeability Apparatus,
Permeometer

Balances

# Dealer or Reference

- ...

Ainsworth, Wm. and Sons, Inc.,... 2151 Lawrence St., Denver, Colo.

Becker, Christian, 92 Reade St., New York, N.Y.

Gurley, W. and L.E., Troy, N. Y.

Suter, Alfred, 200 Fifth Ave., New York, N. Y.

Thomas, Arthur H., West Washington Square, P. O. Box 669, Philadelphia, Pa.

Thomas Balance Co., 818 20th St., Denver, Colo.

Torsion Balance Co., 92 Reade St., New York, N. Y.

Troemner, Henry, 909 Arch St., Philadelphia, Pa.

Voland and Sons, Inc., New Rochelle, N.Y.

Scott Testers, Inc., 76.47.
105 Blackstone St., Providence,
R. T.

Perkins, B. F., and Son, Chicopee St., Holyoke, Mass.

Testing Machines, Inc., 1984 1984 421 West 42nd St., New York, N. Y.

American Laundry Machine Co., Cincinnati, Ohio.

Ewing, Robert, and Sons, Inc., Troy, N. Y.

General Electric Co., Schenectady 5, N. Y.

Hurley Machine Co., Cermak Rd. and 54th Ave., Chicago, Ill. Smith Drum Co., Philadelphia, Pa.

Bursting Strength Tester, Ball-Burst

Bursting Strength, Tester, Diaphragm

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Centrifuges (1 aundering)

Chemical Laboratory Equipment and Reagents

Compression Meter, Dreby

Compressometer (thickness, compressibility, compressional resilience)

Conditioning and Humidification Equipment

Dealer or Reference

Baker, J. T., Chemical Co., Phillipsburg, N. J.

Burrell Technical Supply Co., 1942 Fifth Ave, Pittsburgh 19, Pa.

Central Scientific Co., 1700 Irving Park Rd., Chicago 13, Ill.

Eimer and Amend, 635 Greenwich St., New York, N.Y.

Fisher Scientific Co., 717 Forbes St., Pittsburgh, Pa.

Mallinckrodt Chemical Works, Mallinckrodt St., St. Louis 7, Mo.

Merck and Co., Rahway, N. J.

Thomas, Arthur H., Co., West Washington Square P.O. Box 669, Philadelphia, Pa.

Frazier, Sherman W., 953 15th St., S.E., Washington, 3, D.C.

American Instrument Co., 8030 Georgia Ave., Silver Spring, Md.

Frazier, Sherman W., 953 15th St., S.E., Washington, 3, D.C.

American Instrument Co., 8030 Georgia Ave., Silver Spring, Md.

Baldwin-Southwark Corp., Paschall P.O., Philadelphia, Pa.

Carrier Corp., Syracuse, N. Y.

Parks-Cramer Co., Fitchburg, Mass; Boston, Mass.; Charlotte, N. C.

Crockmeter (colorfastness to rubbing)

Diamatrol
(electronic micrometer for fineness of fiber)

Dies (for cutting samples)

Drapeometer

Fade-Ometer (colorfastness to light)

Fiber Extensometer, Sookne Harris

Fibrograph
(length and uniformity of cotton fibers)

Flammability Tester, A.A.T.C.C.

Flammability Tester, NBS Horizontal Rate-of-Burning

Flat Bed Press

Flexometer (stiffness, crease-resistance, flexural resilience)

Dealer or Reference Secretary, American Association of Textile Chemists and Colorists, Lowell Textile Institute, Lowell, Mass.

Harrington Engineering Co., 405 Lexington Ave., New York, 17, N.Y.

Erkman, Handy, and Erkman, Chicago, Ill.

Fremont Tool and Die Co., Fremont, Ohio.

Independent Die and Supply Co., St. Louis, Mo.

Lonergan Die Co., Chicago, Ill.

Mico Instrument Co., 10 Arrow St., Cambridge, Mass.

Atlas Electric Device Co., 383 West Superior St., Chicago, Ill.

Harris Instruments, Inc., 1246 Taylor St., N.W., Washington, D.C.

Robertshaw-Fulton Controls Co., Knoxville, Tenn.

U. S. Testing Co., Inc., 1415 Park Ave., Hoboken, N.J.

Industrial Tool and Engineering Co., 3432 Ravenswood Ave., Chicago, Ill.

General Electric Co., Schenectady 5, N. Y.

Young and Franklin Tool Works, 107 North Franklin St., Syracuse, N.Y.

American Instrument Co., 8030 Georgia Ave., Silver Spring, Md.

Dealer or Reference

Folding Tester, Schopper (flexural fatigue)

Testing Machines, Inc.,
421 West 42nd St., New York, N.Y.

Friction Meter, Dreby

Frazier, Sherman W., 953 15th St., S.E., Washington 3, D. C.

Furnaces

Burrell Technical Supply Co., 1942 Fifth Ave., Pittsburgh 19, Pa.

Central Scientific Co., 1702 Irving Park Rd., Chicago 13, Ill.

Emerson Apparatus Co., 171 Tremont St., Melrose 76, Mass.

Fisher Scientific Co., 717 Forbes St., Pittsburgh, Pa.

Hosiery Testing Machine, NBS

Frazier, Sherman W., 953 ±5th St., S.E., Washington 3, D.C.

Hydrostatic Pressure Tester, Suter

Suter, Alfred, 200 Fifth Ave., New York, N.Y.

Incline Plane Tester (stress-strain)

Scott Testers, Inc., 105 Blackstone St., Providence, R. I.

Launder-Ometer (colorfastness to laundering)

Atlas Electric Device Co., 383 West Superior St., Chicago, Ill.

Magnifiers and Microscopes

Bausch and Lomb Optical Co., 626 Saint Paul St., Rochester 2, N.Y.

Leitz, E., Inc., 730 Fifth Ave., New York, N. Y.

Spencer Lens Co., 25 Doat St., Buffalo 11, N.Y.

Zeiss, Inc., 485 Fifth Ave., New York, N.Y.

Micronaire, Sheffield (fineness of fiber)

Sheffield Corp., Dayton 1, Ohio.

Crockmeter (colorfastness to rubbing)

Diamatrol
(electronic micrometer for fineness of fiber)

Dies (for cutting samples)

Drapeometer

Fade-Ometer (colorfastness to light)

Fiber Extensometer, Sookne Harris

Fibrograph
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Flammability Tester, A.A.T.C.C.

Flammability Tester, NBS Horizontal Rate-of-Burning

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Flexometer (stiffness, crease-resistance, flexural resilience)

Dealer or Reference Secretary, American Association of Textile Chemists and Colorists, Lowell Textile Institute, Lowell, Mass.

Harrington Engineering Co., 405 Lexington Ave., New York, 17, N.Y.

Erkman, Handy, and Erkman, Chicago, Ill.

Fremont Tool and Die Co., Fremont, Ohio.

Independent Die and Supply Co., St. Louis, Mo.

Lonergan Die Co., Chicago, Ill.

Mico Instrument Co., 10 Arrow St., Cambridge, Mass.

Atlas Electric Device Co., 383 West Superior St., Chicago, Ill.

Harris Instruments, Inc., 1246 Taylor St., N. W., Washington, D.C.

Robertshaw-Fulton Controls Co., Knoxville, Tenn.

U. S. Testing Co., Inc., 1415 Park Ave., Hoboken, N.J.

Industrial Tool and Engineering Co., 3432 Ravenswood Ave., Chicago, Ill.

General Electric Co., Schenectady 5, N. Y.

Young and Franklin Tool Works, 107 North Franklin St., Syracuse, N.Y.

American Instrument Co., 8030 Georgia Ave., Silver Spring, Md,

Dealer or Reference

Folding Tester, Schopper (flexural fatigue)

Friction Meter, Dreby

Furnaces

Hosiery Testing Machine, NBS

Hydrostatic Pressure Tester, Suter

Incline Plane Tester (stress-strain)

Launder-Ometer (colorfastness to laundering)

Magnifiers and Microscopes

Testing Machines, Inc.;
421 West 42nd St., New York, N.Y.

Frazier, Sherman W., 953 15th St., S.E., Washington 3, D. C.

Burrell Technical Supply Co., 1942 Fifth Ave., Pittsburgh 19, Pa.

Central Scientific Co., 1702 Irving Park Rd., Chicago 13, Ill.

Emerson Apparatus Co., 171 Tremont St., Melrose 76, Mass.

Fisher Scientific Co., 717 Forbes St., Pittsburgh, Pa.

Frazier, Sherman W., 953 ±5th St., S.E., Washington 3, D.C.

Suter, Alfred, 200 Fifth Ave., New York, N.Y.

Scott Testers, Inc., 105 Blackstone St., Providence, R. I.

Atlas Electric Device Co., 383 West Superior St., Chicago, Ill.

Bausch and Lomb Optical Co., 626 Saint Paul St., Rochester 2, N.Y.

Leitz, E., Inc., 730 Fifth Ave., New York, N. Y.

Spencer Lens Co., 25 Doat St., Buffalo 11, N.Y.

Zeiss, Inc., 485 Fifth Ave., New York, N.Y.

Sheffield Corp., Dayton 1, Ohio.

Micronaire, Sheffield (fineness of fiber)

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Ovens :

Permeameter Cambridge (gas permeability)

pH Meters

Dealer on Reference America

American Instrument Co., 8030 Georgia Ave., Silver Spring, Md.

Brabender Corp., Rochelle Park, N. Y.

Central Scientific Co., 1702 Irving Park Rd., Chicago 13, Ill.

Emerson Apparatus Co., 171 Tremont St., Melrose 76, Mass.

Saxl Instrument Co., 6 Linnean St., Cambridge 38, Mass.

Suter, Alfred, 200 Fifth Ave., New York, N.Y.

Testing Machines, Inc.,
421 West 42nd St., New York, N.Y.

Cambridge Instrument Co.,.
Grand Central Terminal, New York,
N. Y.

American Instrument Co., 8030 Georgia Ave., Silver Spring, Md.

Brown Instrument Co., Philadelphia, Pa.

Central Scientific Co., 1702 Irving Park Rd., Chicago, T11.

Coleman Electric Co., 319 Madison Ave., Maywood, Ill.

Leeds and Northrup Co., Rockland and Stanton Ave., Philadelphia, Pa.

National Technical Laboratories, 814 Mission St., South Pasadena, Calif.

Thwing-Albert Instrument Co., 5335 Pulaski Ave., Philadelphia, Pa.

Photographic Equipment ...

Pick-O-Meter (electronic thread counter)

Planoflex, Dreby
(ease of distortion in plane
of the fabric)

Platinum Crucibles

Pulse Propogation Meter (instantaneous modulus of elasticity)

Rain Tester, du Pont (water repellency)

Reflectometer, Hunter Multi-Purpose (reflectance)

Snag Tester, N.A.H.M. (Hosiery)

Sock Measuring Device; Schiefer (shrinkage)

Dealer or Reference

Bausch and Lomb Optical Co., 626 Saint Paul St., Rochester 2, N.Y.

Leitz, E., Inc., 730 Fifth Ave., New York, N.Y.

Spencer Lens Co., 25 Doat St., Buffalo 11, N.Y.

Suter, Alfred, 200 Fifth Ave., New York, N.Y.

Zeiss, Inc., 485 Fifth Ave., New York, N.Y.

Sjostrom Machine Co., Lawrence, Mass.

Frazier, Sherman W., 953 15th St., S.E., Washington 3, D.C.

Burrell Technical Supply Co., 1942 Fifth Ave., Pittsburgh 19, Pa.

Fisher Scientific Co., 717 Forbes St., Pittsburgh, Pa.

The Magnetic Amplifier Corp,, 4 Condon St., Waltham, Mass.

Mico Instrument Co., 10 Arrow St., Cambridge, Mass.

Gardner, Henry A., Laboratory, Inc., 4723 Elm St., Bethesda, Md.

Frezier, Sherman W., 953 15th St., S.E., Washington 3, D. C.

Frazier, Sherman W., 953 15th St., S.E., Washington 3, D.C.

Stiffness Testers

Tear Test Machine, Elmendorf

Tensile Testers

Dealer or Reference

American Instrument Co., 8030 Georgia Ave., Silver Spring, Md.

Frazier, Sherman W., 953 15th St., S. E., Washington 3, D. C.

Gurley, W. and L. E., Troy, N. Y.

Mico Instrument Co., 10 Arrow St., Cambridge, Mass.

Saxl Instrument Co., 6 Linnean St., Cambridge 38, Mass.

Testing Machines, Inc.,
421 West 42nd St., New York, N.Y.

Tinius Olsen Testing Machine Co., 500 North 12th St., Philadelphia, Pa.

Thwing-Albert Instrument Co., 5335 Pulaski Ave., Philadelphia, Pa.

Baldwin Southwark Division, Baldwin Locomotive Works, 940 Simpson St., Eddystone, Pa.

Dillon, W.C., and Co., Inc., 5410 West Harrison St., Chicago 44, Ill.

Instron Engineering Co., 30 Allston St., Boston, Mass.

Perkins, B.F., and Son., Chicopee St., Holyoke, Mass.

Saxl Instrument Co., 6 Linnean St., Cambridge 38, Mass.

Scott Testers, Inc., 105 Blackstone St., Providence, R.I.

Suter, Alfred, 1200 Fifth Ave., New York, N.Y.

Testing Machines, Inc.,
421 West 42nd St., New York, N.Y.

6 . P. C.

Tensile Testers, continued

Thermal Transmission Apparatus (Improvised)
Thickness Gages

Thread Counters

### Dealer or Reference

Thwing-Albert Instrument Co., 5335 Pulaski Ave., Philadelphia, Pa.

Tinius Olsen Testing Machine Co., 500 North 12th St., Philadelphia, Pa.

Consult REFERENCES for RP1055.

American Instrument Co., 8030 Georgia Ave., Silver Spring, Md.

Ames, B. C., Co., 12 Ames St., Waltham 54, Mass.

Federal Products Corp., 1140 Eddy St., Providence 1, R.I.

Frazier, Sherman W., 953 15th St., S.E., Washington 3, D.C.

Glogau and Co., 1910-14 W. Birchwood Ave., Chicago 26, Ill.

Precision Scientific Co., 1750 North Springfield Ave., Chicago, Ill.

Pandall, Frank E., 243 Ash St., Waltham, Mass.

Standard Gage Co., 80 Parker Ave., Poughkeepsie, N.Y.

Suter, Alfred, 200 Fifth Ave., New York, N.Y.

Testing Machines, Inc., 421 West 42nd St., New York, N.Y.

Glogau and Co., 1219 Rand McNally Bldg., Chicago 5, Ill.

Precision Scientific Co., 1750 North Springfield Ave., Chicago, Ill.

Sjostrom Machine Co., Lawrence, Mass.

Thread Counters, Continued

Tuft Length Measuring Device (carpets)

Twist Counters

Washing Machines (shrinkage in laundering)

Weather-Ometer

Wrinkle Recovery Meter, Monsanto (crease-resistance)

Yarn Numbering Balance, Universal

Dealer or Reference

Suter, Alfred, 200 Fifth Ave., New York, N.Y.

Testing Machines, Inc., 421 West 42nd St., New York, N.Y.

U. S. Testing Co., 1415 Park Ave., Hoboken, N. J.

Frazier, Sherman W., 953 15th St., S.E., Washington 3, D.C.

Scott Testers, Inc., 105 Blackstone St., Providence 1, R. I.

Suter, Alfred, 200 Fifth Ave., New York, N.Y.

Testing Machines, Inc.,
421 West 42nd St., New York, N.Y.

U. S. Testing Co., 1415 Park Ave., Hoboken, N.J.

Akron Machinery and Engineering Co., 914 Miami St., Akron, Ohio

American Laundry Machine Co., Cincinnati, Ohio.

Electric Household Utilities Corp.,
Hurley Machine Division,
Cermak Rd. and 54th Ave.,
Chicago, Ill.

Ewing, Robert, and Sons, Inc., Troy, N.Y.

Atlas Electric Device Co., 383 West Superior St., Chicago 10, 111.

Monsanto Chemical Co., Textile Chemicals Dept., 140 Federal St., Boston 10, Mass.

Suter, Alfred, 200 Fifth Ave., New York, N.Y.

Dealer or Reference

Yarn Reels

Ainsworth, Wm., and Sons, Inc., 2151 Lawrence St., Denver, Colo.

Becker, Christian, 92 Reade St., New York, N.Y.

Suter, Alfred, 200 Fifth Ave., New York, N.Y.

Testing Machines, Inc.,
421 West 42nd St., New York, N.Y.

#### REFERENCES

General Textile Testing Methods:

"Textiles; General Specifications, Test Methods." Supplement to Federal Specification CCC-T-191a. 57 pages. October 8, 1945. 10 cents.

"Textiles; General Specifications, Test Methods." Federal Specification CCC-T-191a. 21 pages. April 23, 1937. 5 cents.

"Textiles-Testing and Reporting." National Bureau of Standards Commercial Standard CS59-44. 45 pages. February 20, 1944. 10 cents.

"Methods of Analysis and of Reporting Fiber Composition of Textile Products." National Bureau of Standards Commercial Standard CS65-43. 18 pages. February 20, 1943. 5 cents.

"American Association of Textile Chemists and Colorists Year Book."
Howes Publishing Co., Inc., No.1 Madison Ave., New York 10, N. Y.
Annual. \$3.50.

"A.S.T.M. Standards on Textile Materials." Committee D-13 on Textile Materials. American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa. Annual. \$4.00.

"A.S.T.M. Standards. Part III: Nonmetallic Materials-Fuels, Petroleum, Aromatic Hydrocarbons, Soaps, Water, Textiles." American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa. Annual. \$6.00.

"Supplement to Book of A.S.T.M. Standards Including Tentatives. Part III-A: Nonmetallic Materials-Fuels, Petroleum, Aromatic Hydrocarbons, Soaps, Water, Textiles." American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa. Annual. \$4.00

National Bureau of Standards Research Papers:

RP1807. "Solution of Problem of Producing Uniform Abrasion and Its" Application to the Testing of Textiles." H. F. Schiefer. Journal of Research of the National Bureau of Standards, Vol. 39, No.1, pp. 1-10; July 1947. Textile Research Journal, Vol. XVII, No.7, pp. 360-368; July 1947. 10 cents.

#### REFERENCES

- National Bureau of Standards Research Papers, Continued:
- RP1762. "Properties of Water-Repellent Fabrics." J. W. Rowen and D. Gagliardi. Journal of Research of the National Bureau of Standards, Vol. 38, No. 1, pp. 103-117; January 1947. American Dyestuff Reporter, Vol. 36, No. 18, pp. 533-540; September 22, 1947. 10 cents.
- RP1710. "Dynamic Tensile Tests of Parachute Webbing." A. H. Stang, M. Greenspan, and S. B. Newman. Journal of Research of the National Bureau of Standards, Vol. 30, No. 4, pp. 411-419; April 1946. 5 cents.
- RP1679. "Impact Strength of Nylon and of Sisal Ropes." S. B. Newman and H. G. Wheeler. Journal of Research of the National Bureau of Standards, Vol. 35, No. 5, pp. 417-431; November 1945. 10 cents.
- RP1589. "A Study of the Properties of Household Blankets." H. F. Schiefer, H. T. Stevens, P. B. Mack, and P. M. Boyland. Journal of Research of the National Bureau of Standards, Vol. 32, No. 6, pp. 261-284; June 1944. 10 cents.
- RP1562. "A Friction Meter for Determining the Coefficient of Kinetic Friction of Fabrics." E. C. Dreby. Journal of Research of the National Bureau of Standards, Vol. 31, No. 4, pp. 237-246; October 1943. 5 cents.
- RP1546. "Autographic Load-Elongation Apparatus for Fibers." A. M. Sookne and H. A. Rutherford. Journal of Research of the National Bureau of Standards, Vol. 31, No. 1, pp. 25-31; July 1943. Rayon Textile Monthly, Vol. 24, pp. 52-53 and 58-59; July and August 1943. 10 cents.
- RP1505. Wear Testing of Carpets. H. F. Schiefer. Journal of Research of the National Bureau of Standards, Vol. 29, pp. 333-379; November 1942. 20 cents.
- RP1485. "Note on Flexural Fatigue of Textiles." H. F. Schlefer and P. M. Boyland. Journal of Research of the National Bureau of Standards, Vol. 29, No. 1, pp. 69-71; July 1942. 10 cents.
- RP1471. "An Improved Apparatus for Measuring the Air Permeability of Fabrics." H. F. Schiefer and P. M. Boyland. Journal of Research of the National Bureau of Standards, Vol. 28, No. 5, pp. 637-642; May 1942. 10 cents.
- RP1434. "The Planoflex, a Simple Device for Evaluating the Pliability of Fabrics." E. C. Dreby. Journal of Research of the National Bureau of Standards, Vol. 27, No. 5, pp. 469-477; November 1941. 10 cents.

National Bureau of Standards Research Papers, Continued:

RP1422. "A Critical Study of Some Factors Affecting the Breaking Strength and Elongation of Cotton Yarns." H. F. Schiefer and R. S. Cleveland. Journal of Research of the National Bureau of Standards, Vol. 27, No. 3, pp. 325-342; September 1941. 10 cents.

RP1345. "A Multi-Purpose Photoelectric Reflectometer." R. S. Hunter. Journal of Research of the National Bureau of Standards, Vol. 25, pp. 581-618; November 1940. 10 cents.

RP1077. "Evaluation of Crease-Resistant Finishes for Fabrics."
H. F. Schiefer. Journal of Research of the National Bureau of Standards, Vol. 20, pp. 241-252; February 1938. American Dyestuff Reporter, Vol. 27, pp. 22-30; January 10, 1938. 10 cents.

RP1055. "An Improved Apparatus for Measuring the Thermal Transmission of Textiles." R. S. Cleveland. Journal of Research of the National Bureau of Standards, Vol. 19, pp. 075-084; December 1937. 5 cents.

RP1047. "Evaluation of Crush-Resistant Finishing Treatments for Fabrics." H. F. Schiefer. Journal of Research of the National Bureau of Standards, Vol. 19, pp. 571-574; November 1937. American Dyestuff Reporter, Vol. 26, pp. P667-609; November 1, 1937. 5. cents.

RP561. "The Compressometer, an Instrument for Evaluating the Thickness, Compressibility, and Compressional Resilience of Textiles." H. F. Schiefer. Journal of Research of the National Bureau of Standards, Vol. 10, pp. 705-713; June 1933. Textile Research, Vol. 3, pp. 505-513; October 1933. Out of print.

RP555. "The Flexometer, an Instrument for Evaluating the Flexural Properties of Cloth and Similar Materials." H. F. Schiefer. Journal of Research of the National Bureau of Standards, Vol. 10, pp. 647-657; May 1933. Textile Research, Vol. 3, pp. 388-403; June 1933. Out of print.

National Bureau of Standards Circulars:

C455. "Flameproofing of Textiles." M. W. Sandholzer. 20 pages. August 23, 1943. 10 cents.

C429. "Photoelectric Tri-Stimulus Colorimetry with Three Filters."
R. S. Hunter. 46 pages, 11 illustrations. July 30, 1942. 10 cents.

C423. "Microscopic Methods Used in Identifying Commercial Fibers." Thora M. Plitt. 26 pages. 1939. Out of print.

National Bureau of Standards Letter Circular:

LC792: "Optical Instruments, Refractometry and Optical Properties of Glass: Publications of the Staff of the National Bureau of Standards." 14 pages. May 16, 1945. Obtainable from the National Bureau of Standards, Washington 25, D. C. Free.

Non-Government Publications:

"Textile Testing in Germany." H. F. Schiefer, L. Fourt, and R. T. Kropf. Textile Research Journal, Vol. XVII, No. 12, pp. 689-713, December 1947; Vol. XVIII, No. 1, pp. 18-38, January 1948; Vol. XVIII, No. 2, pp. 89-101, February 1948. Bound reprint. Textile Research Institute, Inc., 10 East 40th Street, New York 16, N. Y. 57 pages. 1948. \$3.50,

"Flameproofing Textile Fabrics." Robert W. Little, Major, Q.M.C., under Quartermaster Corps Research Project No. 27 of the National Research Council, National Academy of Sciences; American Chemical Society Monograph Series No. 104. Reinhold Publishing Corp., 330 West 42nd Street, New York, N. Y. 410 pages. 1947. \$6.50.

Clothing Test Methods." Edited by L. H. Newburg and Milton Harris. CAM No. 390. National Research Council, 2101 Constitution Avenue, N. W., Washington, D.C. 98 pages. February 1945.

"Wear Resistance of Apparel Textiles: Literature Survey." H.S. Hall and E. R. Kaswell. Textile Research Journal, Vol. 15, pp. 178-189; May 1945.

"Application of a Thermal Conductivity Method to the Determination of Moisture Vapor Transmission of Packaging Materials." L. Boor and J. K. Dixon. Paper Trade Journal, pp. 1-9; November 2, 1944.

"Compression Meter for Evaluating the Compressibility and Resilience of Fabrics." E. C. Dreby. American Dyestuff Reporter, Vol. 33, No. 10, pp. 199-204; May 8, 1944.

"Physical Methods for Evaluating Hand of Fabrics and for Determining the Effects of Certain Textile Finishing Processes." E. C. Dreby. American Dyestuff Reporter, Vol. 31, No. 21, pp. P497-504; October 12, 1942.

"Technical Evaluation of Textile Finishing Treatments. VI. Test Methods for the Drapeometer." L. J. Winn and E. R. Schwarz. American Dyestuff Reporter, Vol. 30, No. 9, pp. P226-230, P238; April 28, 1941.

"Industrial Fabrics." G. B. Haven. Wellington Sears Company, 65 Worth Street, New York, N. Y. 741 pages. 1941. \$2.00.

"Abrasion and Wear Testing Machines for Textiles." H. J. Ball. A.S.T.M. Bulletin, No. 89, pp. 11-19; December 1937.

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